

Amendment under 37 C.F.R. § 1.111
U.S. App. Ser. No. 10/648,448

Atty. Dckt. No. Q75424

AMENDMENTS TO THE DRAWINGS

Please replace Fig. 1 with the attached new Figure.

Attachment: One (1) Replacement Sheet

REMARKS

Claims 4 and 6 are amended herein. Claims 12-14 are canceled and claim 15 is added as a new claim. The amendments to claims 4 and 6 are based on, e.g., page 9, first paragraph, in the application. Support for new claim 15 is found, for example in original claims 12-14. No new matter is presented.

Accordingly, upon entry of the Amendment, claims 1-11 and 15 will be all of the claims pending in the application.

I. Response to the Objection to the Drawing

The Examiner objects to the drawings and states that only a single view is used in the application and it should not be numbered or labeled "Fig." See 37 C.F.R. § 1.84(u)(1).

A replacement drawing sheet is submitted herewith labeled "Figure", thereby obviating the objection to the drawing. Accordingly, Applicants respectfully request withdrawal of the objection.

II. The Specification

The Examiner requests Applicants' cooperation in correcting any errors of which Applicant may become aware.

The specification is amended herein to change the term "Fig. 1" to "the Figure" in view of the amendment to the drawing. Applicants are not aware of any other errors in the specification.

III. Response to Claim Rejection – 35 U.S.C. § 112, 2nd Paragraph

Claims 4 and 6 are rejected under 35 U.S.C. § 112, 2nd paragraph as allegedly being indefinite with respect to the recitation of the word “preventing”. The Examiner asserts that the claims do not indicate what is being prevented.

Claims 4 and 6 are amended to recite “. . . for preventing oxidation of . . .” to correct an inadvertent error. Accordingly, Applicants respectfully request withdrawal of the rejection.

IV. Response to Claim Rejection – 35 U.S.C. § 102/103

Claims 1, 2, 6 and 8-14 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by, or in the alternative under 35 U.S.C. § 103 as allegedly being obvious over Iwabuchi et al (US 2002/0041977).

Applicants respectfully traverse the rejection and submit that Iwabuchi et al does not disclose, teach or suggest the claimed invention.

The present invention is directed to a stimutable phosphor sheet comprising a stimutable phosphor layer containing a europium-activated cesium bromide based stimutable phosphor as a main ingredient, wherein the stimutable phosphor layer is formed by a vacuum film forming technique, and a substrate supporting the stimutable phosphor layer. In the present invention, the maximum intensity of emission that is generated in a wavelength range of 490-510 nm when the stimutable phosphor layer is exposed to electron beams is lower than the maximum intensity of the emission generated in a wavelength range of 440-460 nm.

The stimutable phosphor sheet of the present invention is quite distinctive from the stimutable phosphor sheet disclosed by Iwabuchi et al. Iwabuchi et al discloses emission

characteristics of a stimutable phosphor layer when exposed to exciting light wherein the maximum intensity of emission generated in a wavelength range of 490 nm to 510 nm is lower than the maximum intensity of emission generated in a wavelength range of 440 nm to 460 nm, by about 50% or less (see Fig. 1). However, independent claim 1 of the present application recites that the maximum intensity of emission generated in a wavelength range of 490 nm to 510 nm when the stimutable phosphor layer is exposed to an electron beam is lower than the maximum intensity of emission generated in a wavelength range of 440 nm to 460 nm. This is a characteristic of the stimutable phosphor layer when exposed to an electron beam, which is different from the maximum intensity of emission at 490 nm to 510 nm when the stimutable phosphor layer is exposed to exciting light such as a laser light being lower than the maximum intensity of emission at 440 nm to 460 nm. That is, the recited characteristic of the stimutable phosphor layer when exposed to an electron beam in the present claims is different from the emission characteristics of the stimutable phosphor layer when exposed to exciting light disclosed by Iwabuchi et al. For at least this reason, Iwabuchi et al does not disclose all elements of claim 1 and claims 2-11, which depend directly or indirectly thereon. Further, there is no motivation for one of ordinary skill in the art to modify the disclosure of Iwabuchi et al with a reasonable expectation of success of achieving the present invention. Therefore, Iwabuchi et al does not anticipate nor render the invention of claims 1-11 obvious.

Further, Iwabuchi et al discloses a stimutable phosphor layer in the radiation image storage sheet described in Example 7 thereof. The radiation image storage sheet in Example 7 does not involve heating the substrate or annealing, which corresponds to the one without annealing of shown in Table 1 on page 20 of the present specification. As discussed in the

specification, this phosphor sheet had different emission-upon-stimulation characteristics and was problematic. See pages 20-21. Thus, Iwabuchi et al's stimuable phosphor layer is different from the stimuable phosphor layer in the stimuable phosphor sheet of the present invention. For this additional reason, Iwabuchi et al does not disclose, teach or suggest the present invention of claims 1-11.

New independent claim 15 recites a method of producing a stimuable phosphor sheet which includes steps of heating the substrate during said evaporation and annealing the stimuable phosphor layer after it is formed on the substrate, wherein the heating temperature for heating the substrate is in a range of 120-250°C and the heating temperature for annealing the stimuable phosphor layer is in a range of 150-250°C.

Iwabuchi et al shows, in Fig. 1, the CsBr:0.01Eu phosphor described in Example 1, which is obtained by firing the mixed powder main components, cesium bromide (CsBr) and europium bromide (EuBr), in an electric furnace. This is not formed on a substrate (support), so the steps of heating the substrate and annealing the stimuable phosphor layer after it was formed on the substrate as recited in claim 15 are not performed. Moreover, Example 1 of Iwabuchi et al is also different from the radiation image storage sheet described in Example 7 in Iwabuchi et al and the stimuable phosphor sheet of the present invention that are made by forming a stimuable phosphor layer on a substrate (support) by vacuum evaporation. Thus, for at least these reasons Iwabuchi et al does not anticipate the invention of claim 15.

Further, there is no motivation to modify the disclosure of Iwabuchi et al with a reasonable expectation of success in achieving the claimed invention. Iwabuchi et al merely describes that annealing may be performed only for heating or cooling the substrate at the time

of evaporation. Iwabuchi et al discloses a heating temperature for annealing in the range of 50 to 600°C. Such a temperature range covers the temperature of 50°C, which is slightly higher than the normal temperature, to the substantially upper limit temperature of 600°C for firing phosphor material, merely suggesting a possible range of heating temperature for annealing. This wide range of the temperature is far from disclosing the specific temperature of 120 to 250°C for heating the substrate and further of 150 to 250°C for annealing after evaporation as recited in the present claims. Thus, one of ordinary skill in the art would not have had a reasonable expectation of achieving the claimed invention recited in claim 15 based on the disclosure of Iwabuchi et al.

In view of the above, Iwabuchi et al does not disclose, teach or suggest the present invention. Accordingly, Applicants respectfully request withdrawal of the rejection under 35 U.S.C. § 102, or in the alternative under 35 U.S.C. § 103 over Iwabuchi et al.

V. Response to Claim Rejections – 35 U.S.C. § 103

In paragraph 9, claims 3-5 and 7 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Iwabuchi et al in view of Neriishi et al (US 6,784,448).

Neriishi et al does not remedy the deficiencies of Iwabuchi et al as discussed above. Therefore, the combination of Iwabuchi et al and Neriishi et al does not render the claimed invention obvious.

Accordingly, Applicants respectfully request withdrawal of the obviousness rejection.

VI. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

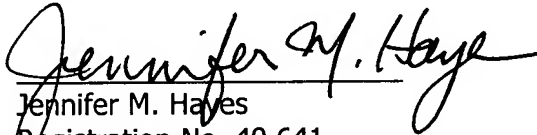
Respectfully submitted,

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

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CUSTOMER NUMBER


Jennifer M. Hayes
Registration No. 40,641

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